

PATENT
Customer Number 22,852
Attorney Docket No. 7040.0116.00

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:)
)
Marco NAHMIAS NANNI et al.)
)
Serial No.: Not yet assigned) Group Art Unit: Not yet assigned
)
Filed: January 8, 2002) Examiner: Not yet assigned
)
For: HIGH PERFORMANCE TYRE)
WITH TREAD BAND HAVING AN)
ANISOTROPIC UNDERLAYER)
STABLE UPON TEMPERATURE)
VARIATION)

Assistant Commissioner for Patents
Washington, DC 20231

Sir:

PRELIMINARY AMENDMENT

Prior to the examination of the above-captioned application, please amend this
application as follows:

IN THE TITLE:

Please amend the title, as follows:

HIGH PERFORMANCE TYRE WITH TREAD BAND HAVING AN ANISOTROPIC
UNDERLAYER STABLE WITH TEMPERATURE VARIATION

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IN THE SPECIFICATION:

Please amend the specification, as follows:

Add two section headings, a section subheading, and a paragraph immediately after the new title HIGH PERFORMANCE TYRE WITH TREAD BAND HAVING AN ANISOTROPIC UNDERLAYER STABLE WITH TEMPERATURE VARIATION, as follows:

--CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a continuation application of International Application No. PCT/EP00/06357, filed July 4, 2000, in the European Patent Office, the contents of which are relied upon and incorporated herein by reference; additionally, Applicant claims the right of priority under 35 U.S.C. § 119(a) - (d) based on patent application No. 99202260.8, filed July 9, 1999, in the European Patent Office; further, Applicant claims the benefit under 35 U.S.C. § 119(e) based on prior-filed, copending provisional application No. 60/145,976, filed July 29, 1999, in the U.S. Patent and Trademark Office.

BACKGROUND OF THE INVENTION

Field of the Invention--

Page 1, line 4, add section subheading **--Description of the Related Art--** prior to the start of the paragraph beginning "These tyres, which are commonly referred to as"

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Page 3, line 7, add section heading --SUMMARY OF THE INVENTION-- prior to the start of the paragraph beginning "The invention arises from the Applicant's realization"

Page 4, line 12, add section heading --BRIEF DESCRIPTION OF THE DRAWINGS-- prior to the start of the paragraph beginning "These and further features of the invention"

Page 4, line 18, add section heading --DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS-- prior to the start of the paragraph beginning "In the drawings, reference 1 indicates"

Add a new page 18 after the claims, adding the following ABSTRACT OF THE DISCLOSURE. A new, separate page 18 including the ABSTRACT OF THE DISCLOSURE is enclosed.

--ABSTRACT OF THE DISCLOSURE

A high performance tyre includes a carcass provided with at least one carcass ply, a belt including two or more layers of reinforcing cords parallel to each other in a layer and crossed with respect to those of an adjacent layer, applied circumferentially on the carcass, a radially-external layer of circumferentially-oriented reinforcing cords applied on the belt, and a tread band comprising an underlayer and an external layer. The underlayer may have a hardness which is substantially constant over a temperature range between 23°C and 100°C. The underlayer may also have an elastic modulus which is substantially constant over a temperature range between 70°C and 100°C. Additionally, the underlayer may be made from an elastomer

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compound comprising reinforcing fibers and hardening resins. Further, the underlayer may have a hardness and an elastic modulus which remain substantially constant between 70°C and 100°C.

A method for making the tyre is also disclosed.--

IN THE CLAIMS:

Please cancel, without prejudice or disclaimer, claims 2-30, and add new claims 31-60, as follows:

--31. (new) A high performance tyre, comprising:

a carcass provided with at least one carcass ply;

a belt comprising two or more layers of reinforcing cords parallel to each other in a layer and crossed with respect to those of an adjacent layer, applied circumferentially on the carcass;

a radially-external layer of circumferentially-oriented reinforcing cords applied on the belt; and

a tread band comprising an underlayer and an external layer;

wherein the underlayer has a hardness which is substantially constant over a temperature range between 23°C and 100°C.

32. (new) The tyre of claim 31, wherein the hardness of the underlayer does not vary by more than 5 International Rubber Hardness Degrees (IRHD) over a temperature range between 23°C and 100°C.

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33. (new) The tyre of claim 32, wherein the hardness of the underlayer does not vary by more than 1 IRHD over a temperature range between 23°C and 100°C.

34. (new) The tyre of claim 31, wherein the hardness of the underlayer is greater than 80 IRHD at 100°C.

35. (new) The tyre of claim 34, wherein the hardness of the underlayer is greater than 85 IRHD at 100°C.

36. (new) A high performance tyre, comprising:
a carcass provided with at least one carcass ply;
a belt comprising two or more layers of reinforcing cords parallel to each other in a layer and crossed with respect to those of an adjacent layer, applied circumferentially on the carcass;
a radially-external layer of circumferentially-oriented reinforcing cords applied on the belt; and
a tread band comprising an underlayer and an external layer;
wherein the underlayer has an elastic modulus which is substantially constant over a temperature range between 70°C and 100°C.

37. (new) The tyre of claim 36, wherein the elastic modulus of the underlayer does not vary by more than 10% over a temperature range between 70°C and 100°C.

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38. (new) The tyre of claim 37, wherein the elastic modulus of the underlayer does not vary by more than 5% over a temperature range between 70°C and 100°C.

39. (new) The tyre of claim 36, wherein the elastic modulus of the underlayer is greater than 15 MPa at 100°C.

40. (new) The tyre of claim 39, wherein the elastic modulus of the underlayer is greater than 20 MPa at 100°C.

41. (new) A high performance tyre, comprising:

a carcass provided with at least one carcass ply;

a belt comprising two or more layers of reinforcing cords parallel to each other in a layer and crossed with respect to those of an adjacent layer, applied circumferentially on the carcass;

a radially-external layer of circumferentially-oriented reinforcing cords applied on the belt; and

a tread band comprising an underlayer and an external layer;

wherein the underlayer is made from an elastomer compound comprising reinforcing fibers and hardening resins.

42. (new) The tyre of claim 41, wherein the underlayer has a ratio between a 10% elongation load in a circumferential direction and a 10% elongation load in a transverse direction which is greater than 3:1.

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43. (new) The tyre of claim 41, wherein the hardening resins are based on components chosen from among one or more of the following groups: resorcinol-methylene donors, epoxides-dicarboxylic acids, epoxides-diamines, epoxides-polyols, and alcohol-diacids.

44. (new) The tyre of claim 43, wherein the methylene donors are hexamethoxymethylenemelamine (HMMM) or hexamethylenetetramine (HMT).

45. (new) The tyre of claim 41, wherein the underlayer comprises a hardening resin based on resorcinol and methylene donors in precondensed form in a quantity greater than 0.5 phr.

46. (new) The tyre of claim 41, wherein the elastomer compound comprises a hardening resin based on resorcinol and methylene donors in a form of two components, wherein a quantity of resorcinol is greater than 0.5 phr, and wherein a ratio of a quantity of methylene donors to the quantity of resorcinol is between 0.5:1 and 3:1.

47. (new) The tyre of claim 41, wherein the reinforcing fibers are chosen from among: polyamides, polyesters, polyolefins, carbon fibers, glass fibers, and polyvinyl alcohol.

48. (new) The tyre of claim 41, wherein the reinforcing fibers are aramid fibers.

49. (new) The tyre of claim 48, wherein the elastomer compound comprises a quantity of aramid fibers ranging between 3 phr and 10 phr.

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50. (new) The tyre of claim 49, wherein the elastomer compound comprises a quantity of aramid fibers ranging between 6 phr and 9 phr.

51. (new) The tyre of claim 41, wherein the underlayer has a thickness greater than 1 mm.

52. (new) The tyre of claim 51, wherein the underlayer has a thickness between 1.5 mm and 2 mm.

53. (new) The tyre of claim 51, wherein the thickness of the underlayer is variable.

54. (new) A high performance tyre, comprising:

a carcass provided with at least one carcass ply;

a belt comprising two or more layers of reinforcing cords parallel to each other in a layer and crossed with respect to those of the adjacent layer, applied circumferentially on the carcass;

a radially-external layer of circumferentially-oriented reinforcing cords applied on the belt; and

a tread band comprising an underlayer and an external layer;

wherein the underlayer has a hardness and an elastic modulus which remain substantially constant between 70°C and 100°C.

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55. (new) A method for improving behaviour at high speeds of a high performance tyre, the tyre comprising:

a carcass provided with at least one carcass ply;

a belt comprising two or more layers of reinforcing cords parallel to each other in a layer and crossed with respect to those of an adjacent layer, applied circumferentially on the carcass; and

a radially-external layer of circumferentially-oriented reinforcing cords applied on the belt;

the method comprising the step of mounting on a periphery of the radially-external layer a tread band comprising an underlayer and an external layer,

wherein the underlayer comprises a thermostable compound.

56. (new) The method of claim 55, wherein the thermostable compound comprises reinforcing fibers and hardening resins.

57. (new) The method of claim 55, wherein the thermostable compound has an elastic modulus which is substantially constant over a temperature range between 70°C and 100°C.

58. (new) The method of claim 55, wherein the thermostable compound has a hardness which is substantially constant over a temperature range between 23°C and 100°C.

59. (new) The method of claim 55, wherein the tread band is obtained by coextruding the underlayer and the external layer.

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60. (new) The method of claim 55, wherein the underlayer is obtained by calendaring.

REMARKS

Applicants submit this Preliminary Amendment together with an Appendix to Preliminary Amendment Dated January 8, 2002, and a patent application under 37 C.F.R. § 1.53(b).

In this Preliminary Amendment, Applicants amend the title and add section headings, section subheadings, and an Abstract of the Disclosure to conform to U.S. practice. Additionally, Applicants add claims to the right of priority and benefit. Further, Applicants cancel, without prejudice or disclaimer, claims 2-30, and add new claims 31-60, which include the same subject matter as the original claims, to improve clarity. The originally-filed specification, claims, abstract, and drawings fully support the amendments to the specification and the addition of new claims 31-60. No new matter was introduced.

If there is any fee due in connection with the filing of this Preliminary Amendment, please charge the fee to our Deposit Account No. 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.



Dated: January 8, 2002

By: _____
Lawrence F. Galvin
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A high performance tyre includes a carcass provided with at least one carcass ply, a belt including two or more layers of reinforcing cords parallel to each other in a layer and crossed with respect to those of an adjacent layer, applied circumferentially on the carcass, a radially-external layer of circumferentially-oriented reinforcing cords applied on the belt, and a tread band comprising an underlayer and an external layer. The underlayer may have a hardness which is substantially constant over a temperature range between 23°C and 100°C. The underlayer may also have an elastic modulus which is substantially constant over a temperature range between 70°C and 100°C. Additionally, the underlayer may be made from an elastomer compound comprising reinforcing fibers and hardening resins. Further, the underlayer may have a hardness and an elastic modulus which remain substantially constant between 70°C and 100°C. A method for making the tyre is also disclosed.

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APPENDIX TO PRELIMINARY AMENDMENT DATED JANUARY 8, 2002

Amendments to the Title

Please amend the title, as follows:

HIGH PERFORMANCE TYRE WITH TREAD BAND HAVING AN ANISOTROPIC
UNDERLAYER STABLE [UPON] WITH TEMPERATURE VARIATION

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